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Adenosquamous Carcinoma of the Prostate

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We present an unusual variant of prostatic adenocarcinoma with obvious squamous differentiation. The squamous component is represented by cells that contain vesicular or hyperchromatic nuclei and large acidophilic cytoplasm. We could demonstrate immunohistochemically the presence of prostate specific antigen (PSA) and glial fibrillary acidic protein (GFAP) in these tumour cells. Either in adenocarcinomatous or malignant squamous components, the prostatic epithelial cells showed the two markers, namely PSA, GFAP, which may reflect the multidirectional differentiation of these cells from a pluripotent origin.

Rare and unusual morphologic variants of prostate cancer account for less than 10% of cases [1]. The clinical behaviour of morphologic variants may differ from that of the prostatic adenocarcinoma, carrying a better or worse prognosis, but data are limited. These tumours are usually associated with typical acinar cancer, rarely occurring in pure form [2, 3]. Adenosquamous carcinoma, an unusual variant of prostatic adenocarcinoma, is characterized by squamous differentiation that has very poor prognosis [2, 3, 4]. Its Gleason score is 5 [3, 7].

We describe a case of adenosquamous carcinoma of the prostate. Our findings and the clinical history suggest a common histogenesis of the glandular and squamous components of the tumour.

Case report

A 54-year-old man presented with complaints of decreased urinary stream and incomplete voiding. Rectal examination showed a hard prostate gland. Serum prostate specific antigen (PSA) was elevated to 20 IU/l (normal range 0–4 IU/l) but serum prostatic acid phosphatase (PAP) was not measured. A core biopsy was performed. Urethroscopy, cystoscopy, and urinary cytology were negative. Extraprostatic primary tumours were not present in this case. The patient did not undergo retropubic radical prostatectomy or radiation and hormonal therapy. The patient died shortly afterwards. No autopsy was performed.

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Materials and methods

Tissue specimens obtained by core biopsy were fixed in 4% formalin and embedded in paraffin. Routine sections were stained with haematoxylin-eosin and additional sections from the core biopsy specimen were reacted with antisera using a standard biotin-streptavidin amplified detection system. The antisera used were PSA (Mouse, clone z009, monoclonal, 6 ml, biogenex), high molecular weight cytokeratin (HMWC) (Mouse, clone AE3, basic, 6 ml, biogenex), Chromogranin-A (Chr-A) (Rabbit, poly, 6 ml, biogenex), PAP (Rabbit, polyclonal, 6 ml, biogenex), Glial Fibrillary Acidic Protein (GFAP) (Rabbit, polyclonal, 6 ml, biogenex).

Results

Microscopically, the tumour was adenocarcinoma with malignant squamous differentiation which a Gleason score of 5 (Figs 1a and 1b). Perineural involvement and at least focally, extension of the tumour through the capsule into the periprostatic adipose tissue were not demonstrated in this specimen. Immunohistochemical findings are summarized in Table 1. The carcinoma was positive for PSA (Fig. 2), and GFAP (Fig. 3) (particularly squamous component) but negative for HMWC, and Chr-A.

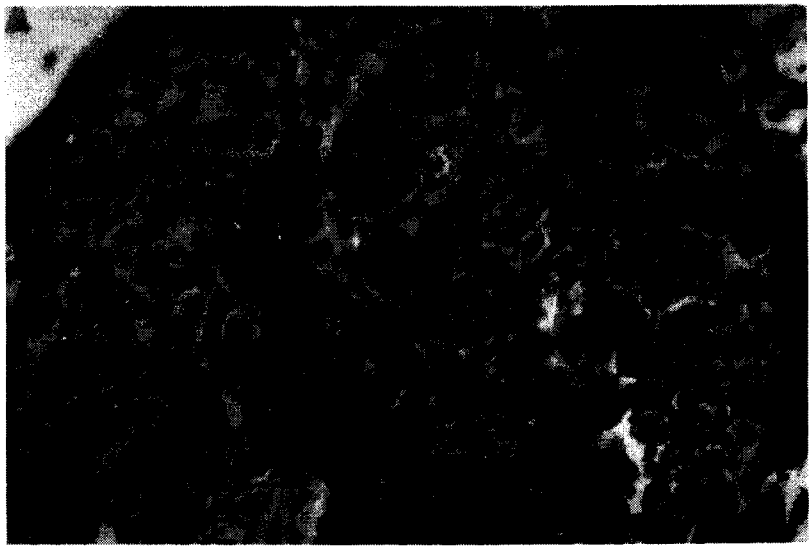

Fig. 1a. Adenocarcinoma with malignant squamous differentiation (Haematoxylin-eosin, ×200)

Fig. 1b. Note glandular component amidst the squamous components (Haematoxylin-eosin, ×400)

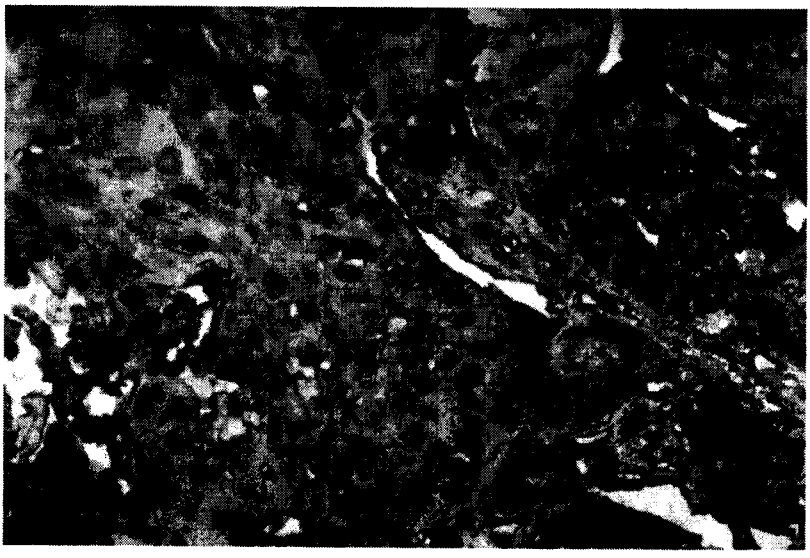

Fig. 2. A paraffin section of the prostate and stained PSA. The characteristic tumour cells are strongly positive (Immunostain, ×400)

Table 1
Immunohistochemical findings

Tumour component	PSA	PAP	HMWC	GFAP
Predominantly glandular pattern	+	+	–	–
Predominantly squamous pattern	+	+	–	+

Fig. 3. Immunohistochemical staining with GFAP.
Malignant squamous component displays immunopositive tumour cells
(Immunostain, ×400)

Discussion

Adenosquamous carcinoma of the prostate is a very rare condition. In 1994, Thompson [2] mentioned seven cases of adenosquamous carcinoma in a series of 887 prostatic carcinomas. The histogenesis of this neoplasm is uncertain. Saito et al. [5] reported that the squamous and glandular components were positive for PAP and PSA as in our case and suggested that the squamous component derived from the adenocarcinoma. However, the squamous component of this present case was GFAP positive. We know that GFAP is a 51 kilodalton intermediate filament expressed by glial cells. It is present in anaplastic tumours, including astrocytomas, medulloblastomas, some oligodendrogliomas, and choroid plexus tumours [3, 8]. GFAP expression has also been described in a few extracerebral neoplasms, including pleomorphic adenomas of the salivary gland, neurofibromas and schwannomas and some malignant and benign

squamous tumours but were not described in prostatic tumours [8]. However, the squamous component in the present case was positive for GFAP, whereas the adenomatous component was negative. These findings seem to support the concept that the glandular and squamous components of adenosquamous carcinoma of the prostate may arise *de novo* from pluripotential stem cells. It is possible that a pluripotent stem cell capable of multidirectional differentiation may give rise to the various types of cancer including mucinous, transitional, squamous, adenosquamous, and small cell carcinoma in the prostate gland.

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